Distribution and Recent Management of Introduced Fishes in Washington

Bill Zook
Warmwater Fish Program Manager, Washington Department of Fish and Wildlife
600 North Capital Way, Olympia, Washington 98501

Abstract- *Nineteen introduced warmwater fish species are currently found in Washington. Of these, seven are common and occur statewide, four have limited general distribution, and eight have very limited regional distribution. In addition, eight species of introduced salmonids are present in Washington waters. Of these, two, hatchery rainbow trout and brook trout, are found abundantly throughout the state, two have limited general distribution, and four have very limited regional distribution. Introduced common carp, grass carp, tench and American shad are also found in Washington waters. Most of these species were intentionally introduced into Washington around the turn of the century. The distribution and abundance of most of these species have remained relatively stable for nearly a century.*

Management emphasis for introduced game fish species is on maximizing long-term recreational benefits while minimizing adverse impacts to native fish and wildlife populations and their habitats. Major management challenges include: 1) Balancing increasing public demand for more and improved fishing opportunity with the increasing need to protect and restore co-occurring native fish and wildlife, 2) determining the nature and extent of interactions between specific introduced and native fish species, and 3) successfully implementing a legislatively mandated, $1.25 million/year, Warmwater Fish Enhancement Program.

Introduction

Washington's freshwater fisheries are heavily dependant on introduced species, introduced strains of native species, and the expanded distribution of native and introduced species into waters where they did not naturally occur. The majority of these introductions occurred around the turn of the century, and where the direct result of government actions designed to increase the diversity and quality of recreational angling in the state.

Distribution of Introduced Fish

Warmwater Fish Introductions

A total of nineteen warmwater game fish species are currently found in Washington waters. These species fall into three general categories of distribution and abundance; common and statewide distribution (C), limited general distribution (L), and very limited regional distribution (R). See Table 1 for a list of these species and a description of their distribution and relative abundance in Washington.

Introduced Salmonids

There are six introduced salmonid species and several introduced domesticated hatchery strains of two other native salmonid species found in Washington. See Table 2 for a list of these species.

Other Introduced Fishes

Table 3 lists four additional introduced fish species that are commonly found in Washington. Several other introduced species that have been identified in Washington, including fathead minnow, lake whitefish and striped bass, are not listed because of their limited occurrence in the state.

Table 1. Introduced Warmwater Fish in Washington

Species	First Water	Year Introduced	Distribution
Sunfish Family			
Largemouth Bass	Sprague/Loon Lakes	1890	C
Smallmouth Bass	Blakley Island	1924	C
Bluegill Sunfish	Loon/Deer/Colville Lakes	1891	C
Pumpkinseed Sunfish	Lower Columbia River	1893	C
Black Crappie	Lower Columbia River	1893	C
White Crappie	Lake Washington	1890	L
Green Sunfish	Loon/Deer/Colville Lakes	1890	R
Warmouth Bass	Loon Lake	1892	R
Rock Bass	Lower Columbia River	1893	R
Perch Family			
Walleye	Banks Lake	1962?	L
Yellow Perch	Loon/Colville Lakes	1893	C
Catfish Family			
Channel Catfish	Clear Lake (Skagit Co.)	1892	L
Flathead Catfish	Snake River	1970?	R
Blue Catfish	Snake River	1905?	R
Brown Bullhead	Silver Lake (Cowlitz Co.)	1883	C
Yellow Bullhead	Columbia River	1905	L
Black Bullhead	Columbia River	1905	R
Pike Family			
Northern Pike	Long Lake (Spokane Co.)	1970?	R
Tiger Musky	Mayfield Reservoir	1988	R

Table 2. Introduced Resident Salmonids in Washington.

Species	Source	Year Introduced
Brown Trout	Europe	1923
Brook Trout	Pennsylvania	1894
Lake Trout	Wisconsin	1900
Golden Trout	Wyoming	1959
Arctic Grayling	Montana	1921
Atlantic Salmon	New York	1973
Lahonten Cutthroat Trout	Nevada	1970
Rainbow Trout (hatchery stocks)	Utah, New England, California	1920

Table 3. Other Introduced Freshwater Fish Species in Washington.

Species	Source	Year Introduced
Common Carp	Europe	1882
Grass Carp	Europe	1990
Tench	Europe	1885
American Shad	Atlantic Coast	1876

Management of Introduced Fishes

The overall objective for the management of introduced fishes in Washington is to **balance increasing public demand for more angling opportunity for these species with the increasing need to protect and restore co-occurring native fish and wildlife species.** This objective implies that:

1. Maintenance of healthy harvestable populations of native fish and wildlife have a higher priority than introduced species.

2. Introduction or range expansion of introduced species should occur only after a comprehensive assessment of both direct and indirect species interactions.
3. Many introduced species play important roles in altered environments and provide important recreational, economic and cultural benefits to Washington citizens.

Warmwater Fish Management Principles

Management principles applied to warmwater fish in Washington are identified in Table 4.

Table 4. Management Principles - Warmwater Fish

#	Management emphasis for these species is on maximizing long-term recreational benefits while minimizing impacts to native fish and wildlife populations.
#	The greatest recreational benefit and least impact is achieved when a balance between predator species (bass, walleye, tiger musky, channel catfish) and prey species (perch, crappie, sunfish) is maintained.
#	Prey species which have high natural reproductive potential and a tendency to become over-abundant, are normally managed without catch, possession or size limits to encourage harvest.
#	Predator species, which tend to be less abundant and more susceptible to over-fishing, are generally managed with catch, possession and size limits to minimize harvest and maintain predation pressure. This prevents over-population and stunting of prey species.
#	Many other variables (including weather, water levels fluctuations, other fish species, etc.) can play a major role in maintaining a balance between warmwater predator and prey species.
#	Hatchery production has much more limited application in warmwater fisheries management because of high reproductive capacity.

Management Guidelines for Introduced Fishes

Current **draft** guidelines for the management of existing introduced fish species in Washington are listed in Table 5.

Table 5. Washington Guidelines for the Management of Existing Introduced Fish Populations.

- Where introduced fish populations currently exist, provide significant recreational benefits, and do not significantly impact native fish and wildlife populations, they should be managed in accordance with the goals and objectives established through integrated ecosystem planning.
- Where the preponderance of scientific evidence indicates that existing introduced fish populations significantly impact listed fish and wildlife species, populations should be managed in accordance with recovery plans for the listed species.
- Where introduced fish populations have been illegally or unintentionally introduced into state waters designated, as a result of integrated ecosystem planning, for the management of other species, causing harm to these species, they should be managed for removal, consistent with economic, social and environmental considerations.
- The enhancement of existing introduced fisheries, including the use of artificial production, habitat manipulation and/or the introduction of additional fish species, should be encouraged when it is consistent with the goals and objectives of integrated ecosystem plans, provides cost effective recreational benefits, and does not significantly impact native fish and wildlife.

Current **draft** guidelines for the introduction of new species in Washington are described in Table 6.

Table 6. Washington Guidelines for the Importation of Introduced Fish Species.

Prior to any range expansion or first time introduction of a non-indigenous fish species to Washington, the following sequential steps shall be taken:

- A formal proposal shall be developed and approved by the Director. This proposal should indicate the management need, assess the expected biological impact, identify all potential risks to native and established introduced fish and wildlife species, and identify the proposed source and destination of introduced species.
- All affected governments and agencies shall be consulted prior to making any such proposal public. Issues raised by these entities must be resolved to the satisfaction of the Director prior to proceeding to the next step.
- Public meetings on the proposed introduction should be held in the communities most directly affected. Sport fishing and environmental groups should be notified of proposal directly and advised of any scheduled public meetings.
- An environmental review shall be completed in accordance with the State Environmental Policy Act (SEPA).
- The proposed introduction must be compatible with the goals and objectives of integrated ecosystem plans already established for the involved basin, or , if no plan exists, one must be developed prior to any new species introduction.

Aquatic Nuisance Species Management

Washington Department of Fish and Wildlife has taken an active and lead role in establishing a program to prevent the introduction of aquatic nuisance species (ANS) in Washington and in the Pacific Northwest. We believe that the relatively new threat from species such as zebra mussel, green crab, mitten crab and New Zealand mud snail must be addressed very aggressively and in regional way. Washington has recently completed a State Aquatic Nuisance Species Plan and submitted the plan to the national ANS Task Force for implementation funding. The Washington State Legislature has directed the Department of Fish and Wildlife to establish a State ANS Task Force to develop recommendations during the 1999 legislative session for actions that need to be taken to protect Washington from the introduction of ANS. Copies of the State ANS Plan and Report to the Legislature can be obtained by contacting Scott Smith, Aquatic Nuisance Species Coordinator, Washington Department of Fish and Wildlife, Olympia, Washington 98501.

Warmwater Fish Enhancement Program

The 1996 session of the Washington State Legislature established a Warmwater Enhancement Program within the Department of Fish and Wildlife. Funding for this program comes from a $5.00 surcharge on freshwater fishing licenses required to fish for bass, walleye, channel catfish, crappie and tiger musky. The surcharge generates $1.25 million dollars a year that is spent on projects that directly contribute to increasing opportunities to fish for and catch warmwater fish species in Washington.

Key elements of the program are listed in Table 7. The fiscal year 1998 spending plan for the Warmwater Enhancement program is outlined on Table 8.

Table 7. Key Elements of the Warmwater Bill.

- **#** Increase opportunities to fish for and catch warmwater game fish
- **#** Fund “new” activities only.
- **#** Emphasize in-the-field work activities.
- **#** Utilize co-op groups and volunteers.
- **#** Minimize adverse impacts on native fish and wildlife.
- **#** No increase in deleterious exotic species.
- **#** No construction or O & M funding for Ringold.

Table 8. Summary of Warmwater Enhancement Activities/Spending FY98.

Activity	Spending Level
Fish Production	
Ringold Construction	$350,000
Fish Stocking (plus $30K carryover)	90,000
Fish Management	
Stock Assessment Teams	210,000
Start-up Equipment	90,000
Access/Habitat Projects	100,000
Research	65,000
Rehabilitation	34,000
Aquatic Nuisance Species	36,000
Office/Computer Support	20,000
Total	$995,000